



February 17, 2009

Mr. John Mannix
Assistant Superintendent for Operations
Monroe Public Schools
200 E Fremont
Monroe, WA 98272

Subject: DIRECTED ENGINEERING STUDY PROPOSAL

Dear John:

The Monroe Public Schools has expressed interest in analyzing and improving the infrastructure of their existing facilities through a performance-based contract with McKinstry Essention, Inc. (McKinstry). This letter of intent will provide the guidelines for which McKinstry will provide the following tasks:

1. Conduct a Directed Engineering Study at the target facilities.
2. Develop a comprehensive Energy Services Proposal for selected initiatives.

The target facilities to be studied are as follows:

- ✓ Park Place Middle School
- ✓ Monroe Middle School

ACTIONS TO BE PERFORMED

McKinstry will complete the following actions leading to implementation of performance-based initiatives:

- **Directed Engineering Study (DES):** The study will identify and analyze performance-based contracting measures along with their associated savings, costs, and potential for utility rebates. The preliminary list of opportunities to be investigated can be found in [Attachment A: Preliminary Opportunity List](#). McKinstry shall work closely with the local utilities to secure any applicable rebates that may be available to Monroe Public Schools. The end result of the Directed Engineering Study shall be an in-depth analysis of the targeted building systems and an energy services proposal for implementation of viable initiatives with associated energy cost savings and payback information. The deliverables associated with the energy service proposal can be found in [Attachment B](#).

REQUESTED INFORMATION

For effective execution of this letter of intent we ask that Monroe SD provide access to the following for each facility:

- ✓ Historical utility bills for the last 24 months.
- ✓ All mechanical, electrical, architectural, and structural drawings.
- ✓ All operational and maintenance manuals, balancing records, & specifications.
- ✓ Operational records related to the cost of maintaining specific equipment.



- ✓ Information with regards to any on-going maintenance contracts.
- ✓ Access to individuals that have relevant information pertaining to the day-to-day operation of energy using systems on site.

CRITERIA FOR IMPLEMENTATION

It is the intent of Monroe Public Schools that McKinstry will implement all approved projects that meet the following criteria:

- ✓ For measures requested by Monroe Public Schools, the implementation criteria are based on demonstrating a net present value benefit over the life expectancy of the proposed measure.
- ✓ Aggregate Lifecycle Cost (LCC) of the projects shall be equal to or less than the Lifecycle Cost (LCC) of the existing condition.
- ✓ Monroe Public Schools intends to utilize capital funds to pay for facility improvement measures meeting the agreed upon criteria. Projected capital upper limit based on levy funding is \$1,925,000.

FEE BILLING BASED ON CRITERIA

All fees assessed under this Letter of Intent will be included in the final implementation costs. In the event that McKinstry is unable to recommend project(s) that meet the criteria above, Monroe Public Schools has no further financial obligation to McKinstry. However, if the recommendations meet or exceed the CRITERIA FOR IMPLEMENTATION, and the district chooses not to enter into an agreement with McKinstry to install the projects, Monroe Public Schools will reimburse McKinstry for its time and expenses at a cost not-to-exceed \$61,700 for the Directed Engineering Study. All associated information, including deliverables, will become the property of Monroe Public Schools upon final receipt of payment.

TASKS AND MILESTONES

McKinstry is prepared to begin work immediately upon approval. Formal progress review meetings will be conducted regularly throughout the study phase. During these review meetings, McKinstry will recommend measures based on preliminary analysis while Monroe Public Schools will provide final direction regarding recommended measures. The goal of these review meetings is to focus engineering efforts, budgeting, and savings assessment on those measures that possess a high probability for implementation.

We look forward to working with Monroe Public Schools on this project. Please contact me if you have any questions.

Best Regards,

Mark Foster
Account Manager



Monroe SD - Phase 1 Group 1
Attachment A: Preliminary Opportunity List

FIM #	FIM Name	Description (Existing Conditions)	Description (Proposed Conditions)	Building
3.01-PPM	Rooftop Units Replacement	<p>Some rooftop units (Nesbitt and Reznor) are original and have been in service for over 30+ years, which have passed their service life. These units include HV C-2 (single zone unit: 1447 CFM, 125 MBH), HV C-3 (single zone unit: 1447 CFM, 125 MBH), HV D-2 (single zone unit: 1600 CFM, 225 MBH), HV D-3 (single zone unit: 1600 CFM, 225 MBH), HV C-1 (multi-zone unit: 12615 CFM, 450 MBH), HV D-1 (multi-zone unit: 8335 CFM, 400 MBH), HV A-1 (multi-zone unit: 11270 CFM, 450 MBH). The existing condition of the units are very poor. The exterior of the units are rusted. The units often failed to provide heat to the spaces. The maintenance staff have to spend a lot of time on repairing and maintaining the units to provide heating and ventilation to the spaces.</p> <p>Three (3) Mammoth multizone units (MZ-1, MZ-2, and MZ-3) were installed in 1980 and have been in service for over 25 years, which passed the service life. Per the maintenance staff, these units are having problems serving the zones.</p>	<p>Replace ten (10) rooftop units with new units. The new units will have appropriately sized high efficiency gas heating and 100% economizer and also provide proper ventilation to spaces. The new multizone systems will have dual fans.</p>	Park Place Middle School
4.01-PPM	Full DDC Upgrade	<p>All the units in Building A, B, C and part of Building D are controlled by pneumatic system. This pneumatic control system is very old and obsolete. Some pneumatic control lines contain water. Also time clocks in Building B and C do not work. The maintenance personnel cannot make it work, and the units are running 24/7 or need manual on/off. Part of Building D, Building E and F have Alerton DDC system to control the operation of the units in these two buildings. The Alerton system is very old.</p>	<p>Upgrade the pneumatic control system to DDC system for Building A, B, C, and D and upgrade existing Alerton system to the new DDC system. Upgrade the existing units and units to be replaced to DDC.</p>	Park Place Middle School
4.02-PPM	Demand Control Ventilation on Gym Units	<p>Two Reznor rooftop units (HV A-2 and HV A-3: 9000 CFM, 7.5 HP, 1200 MBH input/900 MBH output) serve the gymnasium in Building A. The ventilation rate is based on the design minimum air no matter what the occupancy is.</p>	<p>Install CO2 sensor on each unit and implement demand controlled ventilation so that the amount of outside air is controlled based on the actual gym occupancy.</p>	Park Place Middle School
13.01-PPM	Add Weatherstripping to Exterior Doors	<p>There are a lot of doors open directly to the outside. Outside air infiltration could increase the building heating load.</p>	<p>Add weatherstripping to all the exterior doors and reduce the outside air infiltration.</p>	Park Place Middle School
18.01-PPM	Water Fixture Upgrade	<p>The water closets, urinals and sinks still have some low water efficiency fixtures.</p>	<p>Upgrade the faucets with 0.5 gpm aerators. Replace the water closet flushometer with low flow type (check the current flow rate). Replace the urinals with low flow fixtures.</p>	Park Place Middle School



Monroe SD - Phase 1 Group 1
Attachment A: Preliminary Opportunity List

FIM #	FIM Name	Description (Existing Conditions)	Description (Proposed Conditions)	Building
3.01A-MMS	Gym Bldg Heating and Ventilating Equipment Replacement with Electric Heating Units	<p>The Gymnasium Building contains main Gymnasium, small gymnasium, cafeteria, music and life skills classrooms. These spaces are served by eight rooftop units (VU-1, VU-2, AHU-1, AHU-2, and AHU-3) with electric strip heat and air handling units (VU-5, VU-6, VU-7, VU-8 and VU-9) with electric heating located in the attic. These units are original and have been in service for over 30 years. The units are in very bad shape with rusted exterior, damper actuator and electric disconnect box. The operation of damper and electric heating is questionable. The different sections of the units are connected loosely and the integrity of the units is poor. The maintenance staff have to spend a lot of time repairing and maintaining the units in order to make them work to provide ventilation air and heat. During the site visit, the small gym units (AHU-1 and AHU-2) were not able to provide heat to the space, and the students have to jam in the large gym for PE classes.</p>	<p>Replace five (5) rooftop units and five (5) attic AHUs with new units. The new units will have appropriately sized electric heating and also provide proper ventilation to spaces.</p>	Monroe Middle School
3.01B-MMS	Gym Bldg Heating and Ventilating Equipment Replacement with Gaspacks	<p>The Gymnasium Building contains main Gymnasium, small gymnasium, cafeteria, music and life skills classrooms. These spaces are served by eight rooftop units (VU-1, VU-2, AHU-1, AHU-2, and AHU-3) with electric strip heat and air handling units (VU-5, VU-6, VU-7, VU-8 and VU-9) with electric heating located in the attic. These units are original and have been in service for over 30 years. The units are in very bad shape with rusted exterior, damper actuator and electric disconnect box. The operation of damper and electric heating is questionable. The different sections of the units are connected loosely and the integrity of the units is poor. The maintenance staff have to spend a lot of time repairing and maintaining the units in order to make them work to provide ventilation air and heat. During the site visit, the small gym units (AHU-1 and AHU-2) were not able to provide heat to the space, and the students have to jam in the large gym for PE classes.</p>	<p>Replace five (5) rooftop units and five (5) attic AHUs with new units. The new units will have appropriately sized high efficiency gas heating and also provide proper ventilation to spaces. Add gas pipe from the street to the building rooftop and mechanical rooms.</p>	Monroe Middle School



Monroe SD - Phase 1 Group 1
Attachment A: Preliminary Opportunity List

FIM #	FIM Name	Description (Existing Conditions)	Description (Proposed Conditions)	Building
3.01C-MMS	Gym Bldg Heating and Ventilating Equipment Replacement with Air-Air Heat Pumps	The Gymnasium Building contains main Gymnasium, small gymnasium, cafeteria, music and life skills classrooms. These spaces are served by eight rooftop units (VU-1, VU-2, AHU-1, AHU-2, and AHU-3) with electric strip heat and air handling units (VU-5, VU-6, VU-7, VU-8 and VU-9) with electric heating located in the attic. These units are original and have been in service for over 30 years. The units are in very bad shape with rusted exterior, damper actuator and electric disconnect box. The operation of damper and electric heating is questionable. The different sections of the units are connected loosely and the integrity of the units is poor. The maintenance staff have to spend a lot of time repairing and maintaining the units in order to make them work to provide ventilation air and heat. During the site visit, the small gym units (AHU-1 and AHU-2) were not able to provide heat to the space, and the students have to jam in the large gym for PE classes.	Replace five (5) rooftop units and five (5) attic AHUs with new air-air heat pump units. The new units will have appropriately sized heat pumps units with supplemental electric heating and also provide proper ventilation to spaces.	Monroe Middle School
3.01D-MMS	Gym Bldg Heating and Ventilating Equipment Replacement with Heating Hot Water Coil Units	The Gymnasium Building contains main Gymnasium, small gymnasium, cafeteria, music and life skills classrooms. These spaces are served by eight rooftop units (VU-1, VU-2, AHU-1, AHU-2, and AHU-3) with electric strip heat and air handling units (VU-5, VU-6, VU-7, VU-8 and VU-9) with electric heating located in the attic. These units are original and have been in service for over 30 years. The units are in very bad shape with rusted exterior, damper actuator and electric disconnect box. The operation of damper and electric heating is questionable. The different sections of the units are connected loosely and the integrity of the units is poor. The maintenance staff have to spend a lot of time repairing and maintaining the units in order to make them work to provide ventilation air and heat. During the site visit, the small gym units (AHU-1 and AHU-2) were not able to provide heat to the space, and the students have to jam in the large gym for PE classes.	Replace five (5) rooftop units and five (5) attic AHUs with new units. The new units will have appropriately sized heating hot water coils and also provide proper ventilation to spaces. The scope also includes installing hot water boilers, hot water pumps, and HW piping.	Monroe Middle School
3.02A-MMS	Classroom Heating and Ventilating Equipment Replacement with Electric Heating Units	The Classroom/Library Building is served by (22) Trane electric unit ventilators. There are also three (3) unit ventilators serving Science Building classrooms. These univents are very old and noisy, and some electric wiring is already worn off and exposed. These kind of univents tend to have poor heating and air distribution.	Replace these (25) unit ventilators with new unit ventilators.	Monroe Middle School
3.02B-MMS	Classroom Heating and Ventilating Equipment Replacement with Gaspacks	The Classroom/Library Building is served by (22) Trane electric unit ventilators. There are also three (3) unit ventilators serving Science Building classrooms. These univents are very old and noisy, and some electric wiring is already worn off and exposed. These kind of univents tend to have poor heating and air distribution.	Replace these (25) unit ventilators with gas furnaces and rooftop gaspacks.	Monroe Middle School



Monroe SD - Phase 1 Group 1
Attachment A: Preliminary Opportunity List

FIM #	FIM Name	Description (Existing Conditions)	Description (Proposed Conditions)	Building
3.02C-MMS	Classroom Heating and Ventilating Equipment Replacement with Air-Air Heat Pumps	The Classroom/Library Building is served by (22) Trane electric unit ventilators. There are also three (3) unit ventilators serving Science Building classrooms. These univents are very old and noisy, and some electric wiring is already worn off and exposed. These kind of univents tend to have poor heating and air distribution.	Replace these (25) unit ventilators with air-air heat pumps. Install the A-A heat pumps on the roof and distribute the conditioned air from the ceiling diffusers.	Monroe Middle School
3.02D-MMS	Classroom Heating and Ventilating Equipment Replacement with Heating Hot Water Coil Units	The Classroom/Library Building is served by (22) Trane electric unit ventilators. There are also three (3) unit ventilators serving Science Building classrooms. These univents are very old and noisy, and some electric wiring is already worn off and exposed. These kind of univents tend to have poor heating and air distribution.	Replace these (25) unit ventilators with fan coil units with heating hot water coils. This option should be combined with FIM - 3.01D.	Monroe Middle School
3.03A-MMS	Locker Room Units Replacement with Electric Heating MUA	Boys and Girls locker rooms are served by two rooftop units with 100% outside air and electric strip heat.	Replace the units with (2) makeup air units with electric resistance heating.	Monroe Middle School
3.03B-MMS	Locker Room Units Replacement with Gas-fired MUA	Boys and Girls locker rooms are served by two rooftop units with 100% outside air and electric strip heat.	Replace the units with (2) makeup air units with gas heating.	Monroe Middle School
3.03D-MMS	Locker Room Units Replacement with Heating Hot Water Coil MUA	Boys and Girls locker rooms are served by two rooftop units with 100% outside air and electric strip heat.	Replace the units with (2) makeup air units with heating hot water coils. This option should be combined with FIM - 3.01D.	Monroe Middle School
3.04A-MMS	Locker Room Units Replacement with Electric Heating Heat Recovery Unit	Boys and Girls locker rooms are served by two rooftop units with 100% outside air and electric strip heat.	Replace the units with (2) makeup air units with electric resistance heating. Install exhaust air heat recovery system to both locker room units. The heat recovery could be a run around loop or air side heat recovery with exhaust air close by.	Monroe Middle School
3.04B-MMS	Locker Room Units Replacement with Gas-fired Heat Recovery Unit	Boys and Girls locker rooms are served by two rooftop units with 100% outside air and electric strip heat.	Replace the units with (2) makeup air units with gas heating. Install exhaust air heat recovery system to both locker room units. The heat recovery could be a run around loop or air side heat recovery with exhaust air close by.	Monroe Middle School
3.04D-MMS	Locker Room Units Replacement with Heating Hot Water Coil Heat Recovery Unit	Boys and Girls locker rooms are served by two rooftop units with 100% outside air and electric strip heat.	Replace the units with (2) makeup air units with heating hot water coils. Install exhaust air heat recovery system to both locker room units. The heat recovery could be a run around loop or air side heat recovery with exhaust air close by.	Monroe Middle School



Monroe SD - Phase 1 Group 1
Attachment A: Preliminary Opportunity List

FIM #	FIM Name	Description (Existing Conditions)	Description (Proposed Conditions)	Building
4.01-MMS	DDC Upgrade	All the units in the school are controlled by pneumatic system. This pneumatic control system is very old and obsolete. Some pneumatic control lines contain water. The cost for repairing the pneumatic components is high. Although each building has its own time clock, the actual function of these time clocks is questionable based on the condition of the system.	Upgrade the whole school to DDC including old existing units and units to be replaced.	Monroe Middle School
4.02-MMS	Demand Control Ventilation on Gym and Cafeteria Units	Two rooftop units serve the main gymnasium. The small gymnasium is served by two Aladdin rooftop units. The cafeteria is served by a rooftop unit. The ventilation rate is based on the design minimum air no matter what the occupancy is.	Install CO2 sensor on each unit and implement demand controlled ventilation so that the amount of outside air is determined based on the actual gym occupancy.	Monroe Middle School
9.01-MMS	Lighting Upgrade	Most of the classrooms and cafeteria have T-12 lighting with magnetic ballasts.	Perform a lighting audit for lighting upgrade. Replace all T-12 lighting with T-8 with electronic ballasts.	Monroe Middle School
13.01-MMS	Add Weatherstripping to Exterior Doors	There are a lot of doors open directly to the outside. Outside air infiltration could increase the building heating load.	Add weatherstripping to all the exterior doors and reduce the outside air infiltration.	Monroe Middle School
18.01-MMS	Water Fixture Upgrade	The water closets, urinals and sinks still have some low water efficiency fixtures.	Upgrade the faucets with 0.5 gpm aerators. Replace the water closet flushometer with low flow type (check the current flow rate). Replace the urinals with low flow fixtures.	Monroe Middle School



ATTACHMENT B
MONROE PUBLIC SCHOOLS
DIRECTED ENGINEERING STUDY DELIVERABLES

The Directed Engineering Study and final Energy Services Proposal will include all required information as outlined under the State Energy Services Agreement. At least the following elements will be included:

1. A description of the facility and a description of those buildings and systems which shall receive ESCO Equipment and ESCO Services;
2. The cost effective Facility Improvement Measures (FIMs) to be installed or caused to be installed by the ESCO and a description of the FIMs analyzed but disqualified under the cost effectiveness criteria;
3. A description of the services that the ESCO will perform or cause to be performed on or in the facility, including but not limited to engineering, construction management, the operations and maintenance procedures for use on ESCO Equipment, training for facility personnel, warranty service provided, and equipment maintenance provided;
4. The Maximum Allowable Project Cost, itemized in detail;
5. Recommendations for replacement of existing equipment, along with recommendations for improvements to existing equipment and operating conditions;
6. The standards of comfort and service appropriate for the facility;
7. The baseline energy consumption for the facility, including the data, methodology and variables used to compute the baseline, and the baseline calendar period which shall not be less than twelve (12) months;
8. The estimated energy savings and energy cost savings that are expected to result from the installation of the ESCO Equipment and from the ESCO Service, and an explanation of the method used to make the estimate;
9. The method by which Energy Savings and Energy Cost Savings will be calculated during the term of the Energy Services Agreement;
10. A description of how the ESCO will finance its acquisition of the ESCO Equipment and when title to the ESCO Equipment will pass to the Owner;
11. A description of how the Energy Cost Savings will be guaranteed by the ESCO;
12. A description of how the ESCO proposes to be compensated;
13. The term of the Energy Services Agreement;
14. The Termination Value for each year during the term of the Energy Services Agreement;
15. The schedule for project completion;
16. The nature and extent of the work and equipment that the ESCO anticipates it will receive from other firms under subcontract.